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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,644	06/26/2001	Hajime Akimoto	503.40291X00	1964

20457 7590 08/11/2003

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EXAMINER	
NGUYEN, JENNIFER T	
ART UNIT	**PAPER NUMBER**
2674	

DATE MAILED: 08/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/888,644	AKIMOTO ET AL.	
	Examiner	Art Unit	
	Jennifer T Nguyen	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on 12/10/01 is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. Figure 23 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 8-11 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim can not depend from any other multiple dependent claim 5. According, the claims 8-11 have not been further treated on the merits. See MPEP § 608.01(n).

Claim 26 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim can not depend from any other multiple dependent claim 25. According, the claim 26 has not been further treated on the merits. See MPEP § 608.01(n).

3. In claim 1, the phrase "A image display apparatus" should be changed to -- An image display apparatus --, and the phrase "image signalto" should be changed to -- image signal to--. Correction is required.

In claim 9, the phrase "maximum drive frequencyt" should be changed to -- maximum drive frequency--. Correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3, 11, 14, 24, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the Power consumption" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claims 3, 14, and 24 recites the limitation "the mode switch" in lines 3, 20, and 6, respectively. There is insufficient antecedent basis for this limitation in the claim.

Claims 11 and 26 recites the limitation "said second mode" in lines 25 and 17, respectively. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 8-10, 12, 13, 19, 20, 22, 23, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakajima et al. (U.S. Patent No. 6,157,358).

Regarding claims 1, 12, and 22, referring to Figs. 1-3, Nakajima teaches an image display apparatus having a display unit (12) composed of a plurality of pixels (11) and a control unit (24) for controlling the display unit (12), further comprising: a DA converter (19) for converting the digital display data into an analog image signal, wherein said DA converter (19) is composed of

a first DA converter and a second DA converter, a power consumption when said first DA converter is operated being smaller than that when said second DA converter is operated, wherein said DA converter (19) operates either of said first DA converter and said second DA converter according to the instruction from said control unit (24), and outputs the converted analog image signal to said display unit (12), and wherein said display unit (12) changes the number of the independent display pixels (11) of said display unit (12) according to the instruction from said control (24), and displays according to said analog image signal (col. 2, lines 34-67, col. 3, lines 1-67, and col. 4, lines 15-17).

Regarding claims 8, 10, 20, and 25, Nakajima further teaches the first DA converter and the second DA converter each converts the input signal into an analog image signal with different number of bit, respectively (col. 3, lines 3-67).

Regarding claim 9, Nakajima also teaches that the first DA converter and said second DA converter each converts the input signal into an analog image signal with different maximum drive frequency, respectively (col. 3, lines 3-67).

Regarding claims 13, 19, and 23, Nakajima further teaches either one of said first DA converter and said second DA converter converts digital data into an analog image signal in accordance with an instruction from said controller (24) (col. 2, lines 45-67 and col. 3, lines 1-14).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 2-4, 11, 14, 21, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. (U.S. Patent No. 6,157,358) in view of Zavracky et al. (U.S. Patent No. 6,552,704).

Regarding claim 2, Nakajima differs from claim 2 in that he does not specifically teach a gate line shift register for controlling the scanning of the display unit is connected to said display unit. However, referring to Figs. 2A and 12A, Zavracky teaches a gate line shift register (40) for controlling the scanning of the display unit is connected to the display unit (38), the control unit (42) outputs the instruction to said gate line shift register (40), and the number of independent display pixels (62) of said display unit (38) is changed by the gate line shift register (40), and a image is displayed (col. 4, lines 23-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the gate line shift register as taught by Zavracky in the system of Nakajima in order to reduce power consumption display mode by scanning simultaneously every two lines in the top and the bottom.

Regarding claims 3, 14, and 24, Nakajima further teaches the control unit (24) gives an instruction to the DA converter and the gate line shift register according to a mode switch instruction (col. 2, line 53 to col. 3, line 25).

Regarding claim 4, Nakajima further teaches the mode switch instruction has a first mode for carrying out the conversion processing by said first DA converter and a second mode for carrying out the conversion processing by said second DA converter, a pixel (11) of said display unit (12) is arranged corresponding to the region enclosed by plural gate lines and plural signal lines (13) arranged to intersect with the plural gate lines, the gate line shift register controls at

least two gate lines of said plural gate lines at the same timing in said first mode, and said first DA converter outputs one converted analog image signal to at least two signal lines.

Regarding claims 11, 21, and 26, the combination of Nakajima and Zavracky teaches an illumination means (1111) for supplying light to said display unit (1112), wherein the illumination means supplies light to said display unit in said second mode (Fig. 12A, from col. 10, line 56 to col. 11, line 22 of Zavracky).

10. Claims 5-7 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. (U.S. Patent No. 6,157,358) in view of Zavracky et al. (U.S. Patent No. 6,552,704) and further in view of Negishi et al. (U.S. Patent No. 5,907,314).

Regarding claims 5 and 15, the combination of Nakajima and Zavracky differs from claims 5 and 15 in that it does not specifically teach two memories each having different capacity, wherein the two memories correspond to the first DA converter and the second DA converter, respectively. However, referring to Fig. 6, Negishi teaches two memories each having different capacity, wherein the two memories (17, 18) correspond to the first converter (16) and the second converter (19), respectively (col. 10, lines 52-64 and col. 13, lines 6-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the two memories as taught by Negishi in the system of the combination of Nakajima and Zavracky in order to decrease the power consumption of the display device.

Regarding claims 6, 16, and 17, the combination of Nakajima, Zavracky, and Negishi teaches the display unit, said DA converter (Fig. 1 of Nakajima), the gate line shift register (Fig. 2A of Zavracky), and the memory (Fig. 6 of Negishi) having small capacity among the memories

are arranged on the same substrate, and the memory with small capacity is formed by using polysilicon.

Regarding claims 7 and 18, the combination of Nakajima, Zavracky, and Negishi teaches the memory with small capacity corresponds to the first DA converter, and the memory with large capacity corresponds to the second DA converter (col. 13, lines 6-61 of Negishi).

11. The prior made of record and not relied upon is considered to pertinent the applicant's disclosure:

Date et al. (U.S. Patent No. 5,648,791) teaches LCD control system including storage means and D/A converters.

Sasaki (U.S. Patent No. 6,049,321) teaches liquid crystal display.

Udo et al. (U.S. Patent No. 6,304,241) teaches driver for a liquid crystal display panel.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jennifer T. Nguyen** whose telephone number is **703-305-3225.** The examiner can normally be reached on Mon-Fri from 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard A Hjerpe** can be reach at **703-305-4709**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC. 20231

Or faxed to: 703-872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, sixth-floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is 703-306-0377.

Jennifer T. Nguyen
08/05/2003
Art Unit 2674